THE

ANTHROPOMETRIC TABLES

—OF—

AMHERST COLLEGE.

1892.

THE

RESULTS OF ANTHROPOMETRY.

AS DERIVED FROM THE MEASUREMENTS OF THE STUDENTS IN AMHERST COLLEGE.

A PAPER PRESENTED TO THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF PHYSICAL EDUCATION AT THEIR ANNUAL MEETING IN PHILADELPHIA, APRIL, 1892.

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1892.

PHYSICAL MEASUREMENTS AS AFFORDING A BASIS FOR THE DETERMINATION OF THE IDEAL MAN.

More than a century ago, Sir Joshua Reynolds in England used this language:

"From reiterated experience and a close comparison of the objects of nature, the artist becomes possessed of a central form from which every deviation is deformity. * * * * And as there is one general form which belongs to the human kind at large, so in each of these classes there is one common idea and central form which is the abstract of the various individual forms belonging to that class. But I must add further, that though the most perfect forms of each of the general divisions of the human figure are ideal, and superior to any individual forms of that class, yet the highest perfection of the human figure is not to be found in any one of them. It is not in the Hercules, nor in the Gladiator, nor in the Apollo; but in that form which is taken from them all, and which partakes of the activity of the Gladiator, of the delicacy of the Apollo, and the muscular strength of the Hercules."

The object of this article is not to exhibit on paper or in figures the ideal human form, but believing there is an ideal form as conceived in the Divine mind, and that this ideal is by no means as yet present to us in the bodies of our young men; but to show that the studies here presented may give us some glimpses of this ideal, and how we may approximate to it. Or, perhaps it is better to say that these studies show us what is the best human form and proportion as it actually exists to-day, and then from the special and peculiar excellencies as brought out in these researches, we can set ourselves to work to see if we cannot elevate the average to a higher ideal.

But firstly let us bring up a little past history of the study of the human form in ideal.

The Sanscrit manuscript written in the early Christian centuries is the oldest literature on this subject. It is called the Silpi Sastri, and with great exactness and precision divides the human body into nine portions, and 480 parts.

The hair,	15
The face,	55
The neck,	25
The chest,	55
From the chest to the navel,	55
Thence to the pubes,	53
" " knee,	90
The knee itself,	30
The leg and foot,	102
	480

And by a most "occult" administration of a tangle of squares, circles and triangles it was "demonstrated" in this manuscript what the perfect human form might be expected to resemble.

A Greek sculptor Polykleitus about 400 years B. C. has left a treatise called the "canon" on human proportions. This was illustrated by a marble statue called Doryphorus, or Spear Bearer, which was said to have been of "perfect proportions." But the model has disappeared.

Phidias, still later, employed twenty models, borrowing from each of them the most beautiful parts "permitting him to arrange them with all the necessary strength and dignity."

And other schemes have been devised, and have perished, by other lesser lights among artists ancient and modern, endeavoring to tell us what is the perfect or ideal human form.

But near the beginning of the present century, as scientific methods have come to the front to confirm or overthrow theory as it may be true or false, the artistic conception has been asked to wait a little while, until patient, plodding, scientific investigation shall show us what we now have on hand to enable us to try and construct the artistic ideal.

And the first investigator in this field of research is no less a man than Baron L. A. G. Quetelet of Belgium, in the prime of his activities from 1850 to 1870. His work which we find under the different captions of "proportions," "superficial extent," "development," "measure of the different faculties" and "theory of probabilities of the human body" he most carefully carried out by observation, experiment, and use of the doctrine of means and averages over an immense field of investigation. And to Baron Quetelet we must give the title of the Father of Anthropometry.

Since the year 1884, the American Association for the Advancement of Physical Education has received, and there have been read at its annual meetings many papers on anthropometry and its kindred subjects. It has also adopted a definite method of ascertaining the proportions of the human body mainly as derived from measurements made in colleges, schools and the Y. M. C. associations.

Working in the very close direction of the method adopted by this association, the Department of Physical Education in Amherst College has been making a prolonged and careful study of the physical statistics of all of the nearly 3000 students who have been connected with this Institution during the last thirty years. The results of study have been carefully preserved, collected and tabulated in several different ways, and the most important of them are appended to this paper. It has not, however, been the design in it all, to labor according to any preconceived theory or model, but merely to gather together the facts, and then find out the law or method which they seem to outline or foreshadow.

This large mass of measurements has been looked at, arranged and tabulated in the following different ways.

The first one is in the common method of taking the AVERAGE of each item of all the students measured. This means, adding together the measures of each student, and then dividing the amount by the total number of students observed. This is to be found under the table of THE AVERAGE STUDENT.

As twenty-one years is considered by common law to be the date of arriving at full manhood, the measurements of those who were between TWENTY-ONE AND TWENTY-TWO YEARS OF AGE are arranged and exhibited under the table THE STUDENT TWENTY-ONE YEARS OLD.

For the sake of further unfolding the subject, these measurements have been arranged and tabulated according to the doctrine of MEANS, OR, OF MEAN PROPORTIONS. The method of securing this, is, to arrange all the items in groups with a common difference, from the least to the greatest, when we readily find the group with the largest number, which represents the MEAN number of the whole. This is found under table 3, or the one OF THE STUDENT OF MEAN PROPORTIONS.

Another way of illustrating these results is the grouping of all the items by the AGES OF THE INDIVIDUALS. The ages as studied here have been from sixteen to twenty-six. This is THE TABLE OF AGES.

The PERCENTILE METHOD is another way of expressing the results of these measurements. This method is analogous to that of the

"means." The items here are all arranged in order from the greatest to the least, when five per cent. are counted off for the first division, ten more for the second, and so on down to fifty per cent., which corresponds very closely with the "average," or "mean," as already described. These five divisions indicate a measure above the fifty per cent. Then another division of ten per cent. indicates forty per cent. below the fifty per cent. division; and another ten, per cent, thirty more below, and so on to the minimum of five per cent.

The last table is that with STATURE for a basis of comparison. Here all the items are grouped together under the differing body heights, from the lowest to the highest with the variation of one centimeter, or about half an inch in each group. For instance, taking the lowest group measuring 1600 m. m. or 63 inches, all men of this height—1600 to 1609— are tabulated together and each of the fifty-four items averaged to secure the standard of measurements for men of the heighth of 1600 m. m., or 63 inches. Then the other heights, 1610, 1620 and so on up to 1830 m. m., or 72 inches, are tabulated in the same manner. This is the table represented BY HEIGHTS.

Thus are brought side by side six different ways of studying the anthropometric results obtained from the students of Amherst College. And it certainly is both instructive and interesting to see the close relation of results in these different methods, and very likely if we feel that we must adopt one of these several methods, we shall have to be on our guard lest we should need the advice of the countryman to the traveler who inquired which was the best of three roads before them, "all of them lead you there, but whichever one you take before you get there you'll wish you had taken the other."

For, without doubt, age, weight, stature and per cent. are each important factors in this problem, when we are to treat it in a cosmopolitan manner. But for educational and developmental study, where so much of the need of physical training now lies, for the training, strengthening and developing weak and poorly developed bodies, the STANDARD OF STATURE seems the safest and surest to work from. The painter and sculptor certainly makes his dimensions of size according to the height of the subject he is placing on canvas or in marble. There are certain limits to the outline of the tall person which he would not give to a shorter figure, even if the age were exactly the same. He would not add the encumbrance of fat to the figure short and chubby, even though the theory was ever so strong that just so much adipose must be there all the same, no matter

what the lengths of the bone so warmly covered up might be. And it seems rational to suppose that the capacity and size of the vital organs, and the strength of the muscles, to move the longer or shorter levers will be proportioned to the length of trunk and limb, rather than to the mere weight of the tissues. Also the facts are established, beyond doubt, long ago, that the size of the lungs and some other vital organs, depends in each individual case upon the bodily stature, so many additional cubic inches of lung capacity for each inch of stature. And as strength of muscle depends on the number rather than the length of its fibers, we shall see that the long arm or leg needs a thicker muscle to move it than does a shorter one. Hence the trunk, arm or leg of the person a little longer than another of exactly the same age or weight, would require a little longer girth measure, to endue it with the strength proportioned to the size.

It will not, however, be right to dismiss this subject without presenting to this association the opinion of Mr. Charles Roberts, the foremost authority on anthropometry in Great Britain to-day. In treating of the subject in "index columns, age columns and result columns," he sums up the whole by saying, "the total height being the most characteristic and important measurement of the body, the arrangement of the table of heights has been made the model for all the rest."

In concluding, it seems safe to say, that the examination of the tables constructed on Bodily Stature as a datum give strong support to the idea that this element is the determining basis for an anthropometric standard whether of the ideal man, or for rational deductions and prescriptions for a better or more normal rate and quality of bodily growth.

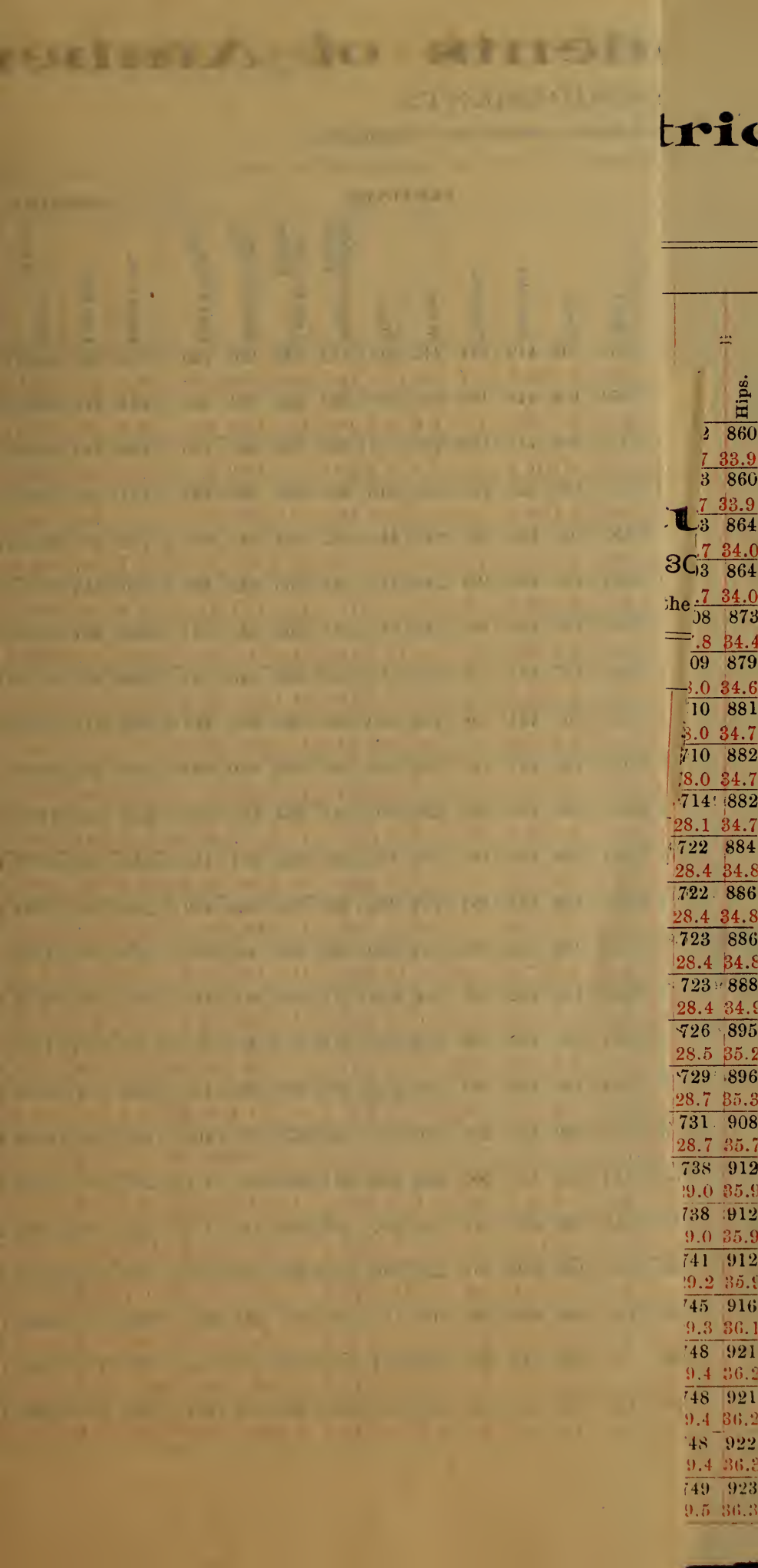
It is a pleasure and privilege to say that the preparation and printing of these tables, and the offer of a copy to each member of this association is made possible by the endowment of a "contingent fund" for anthropometric, and its kindred work in Amherst College by Dr. Rufus P. Lincoln in New York.

BY AGE.												
16 years												
17 "												
18 "												
19 "												
20 "												
21 "												
22 "												
23 "												
24 "												
25 "												
26 "												

Anthropometric Study of the Students of Amherst College.

The black figures represent millimeters, kilograms and liters: the red, inches, pounds and cubic inches.

BY AGE.	WEIGHT.	HEIGHTS.						GIRTHS.																								BREADTHS.												LENGTHS.				STRENGTHS.							CAPACITY OF LUNGS.	PILOSITY.	NUMBER OF MEN MEASURED
		Body.	Sternum.	Navel.	Pulse.	Knee.	Sitting.	Head.	Neck.	Chest Repose.	Chest Full.	Belly.	Hips.	Right Thigh.	Left Thigh.	Right Knee.	Left Knee.	Right Calf.	Left Calf.	Right Instep.	Left Instep.	Upper Right Arm Contracted	Upper Right Arm.	Upper Left Arm.	Right Elbow.	Left Elbow.	Right Forearm.	Left Forearm.	Right Wrist.	Left Wrist.	Head.	Neck.	Shoulder.	Nipples.	Waist.	Hips.	Right Shoulder Elbow.	Left Shoulder Elbow.	Right Elbow Tip.	Left Elbow Tip.	Right Foot.	Left Foot.	Stretch of Arms.	Horizontal Length.	Lungs.	Back.	Dip.	Pull.	Legs.	Right Forearm.	Left Forearm.	Total.			
1. TABLE OF THE AVERAGE STUDENT.																																																					
	61.2	1725	1410	1030	860	476	903	572	349	880	927	724	893	517	512	361	359	359	349	245	242	295	257	253	251	247	267	261	166	165	155	108	430	198	250	323	373	371	461	459	260	259	1780	1732	1.5	137	6	9	166	41	38		3.77		7088
	134.9	67.9	55.5	40.5	33.9	18.7	35.5	22.5	13.7	34.6	36.5	28.5	35.1	20.3	20.2	14.2	14.1	14.1	13.7	9.6	9.5	11.6	10.1	10.0	9.8	9.7	10.5	10.3	6.5	6.5	6.1	4.2	16.9	7.8	9.8	12.7	14.7	14.6	18.1	18.1	10.2	10.2	70.1	68.2	3.31	302			365	90	84		230		
2. TABLE OF THE STUDENT 21 YEARS OLD.																																																					
	63.1	1726	1407	1025	864	477	903	572	356	892	933	725	898	521	519	359	358	350	348	244	243	301	264	259	253	249	266	259	166	165	155	109	431	200	256	327	374	374	462	459	261	260	1794	1738	1.4	146	7	10	172	41	39		4.23		326
	138.8	67.9	55.3	40.4	34.0	18.7	35.5	22.5	14.0	35.1	36.7	28.5	35.3	20.5	20.4	14.1	14.1	13.8	13.7	9.6	9.6	11.8	10.3	10.2	10.0	9.8	10.5	10.2	6.5	6.5	6.1	4.3	16.9	7.9	10.1	12.9	14.7	14.7	18.1	18.1	10.3	10.2	70.6	68.4	3.10	322			378	90	86		258		
3. TABLE OF THE STUDENT OF MEAN PROPORTIONS.																																																				
	64.0	1720	1410	1023	860	480	910	570	350	880	925	720	890	515	510	360	360	359	350	240	240	295	260	250	250	250	260	260	165	165	154	110	430	200	250	320	370	370	460	460	260	260	1770	1730	1.2	150	4	10	175	40	37		3.90		2086
	141.1	67.7	55.5	40.3	33.9	18.9	35.8	22.4	13.8	34.6	36.4	28.3	35.0	20.3	20.1	14.2	14.2	14.1	13.8	9.4	9.4	11.6	10.2	9.8	9.8	9.8	10.6	10.2	6.5	6.5	6.1	4.3	16.9	7.9	9.8	12.6	14.6	14.6	18.1	18.1	10.2	10.2	69.7	68.1	2.64	331			386	88	82		238		
4. TABLE OF 50 PER CENT. MEASUREMENTS.																																																				
	61.6	1724	1410	1029	864	476	905	569	351	885	925	730	893	514	510	359	359	347	345	242	241	295	259	252	250	247	262	256	165	163	153	108	433	196	253	325	373	371	461	459	260	260	1789	1739	1.4	139	6	9	169	39	37	453	3.89		2230
	135.8	67.8	55.5	40.5	34.0	18.7	35.6	22.4	13.8	34.8	36.4	28.7	35.1	20.2	20.1	14.2	14.2	13.7	13.6	9.5	9.5	11.6	10.2	9.9	9.8	9.7	10.3	10.1	6.5	6.4	6.0	4.2	17.0	7.7	10.0	12.8	14.7	14.6	18.1	18.1	10.2	10.2	70.4	68.4	3.10	306			378	86	82		237		
5. TABLE OF AGES.																																																					
16 years	58.87	1716	1415	1038	866	480	888	562	344	858	897	705	854	502	498	357	358	342	339	242	241	279	250	240	245	240	253	249	166	164	154	106	418	188	246	320	374	370	466	462	263	263	1781	1733	1.31	130	4	8	151	35	34	411	3.91	2.17	40
	129.4	67.47	55.7	40.9	34.1	18.9	35.0	22.1	13.5	33.8	35.3	27.7	33.6	19.8	19.6	14.0	14.1	13.5	13.3	9.5	9.5	11.0	9.8	9.4	9.6	9.4	10.0	9.8	6.5	6.4	6.1	4.2	16.4	7.4	9.7	12.6	14.7	14.6	18.3	18.2	10.3	10.3	70.1	68.2	2.9	286			333	77	75		239		
17 "	59.22	1725	1411	1036	869	477	900	563	344	857	886	715	881	504	504	358	359	339	338	246	242	282	250	242	245	242	255	247	165	163	153	107	426	190	247	322	370	369	459	458	261	261	1780	1738	1.37	124	4	8	150	37	34	388	4.01	2.29	90
	130.2	67.9	55.5	40.7	34.2	18.8	35.4	22.1	13.5	33.7	34.9	28.1	34.7	19.8	19.8	14.1	14.1	13.3	13.3	9.7	9.5	11.1	9.8	9.5	9.6	9.5	10.0	9.7	6.5	6.4	6.0	4.2	16.8	7.5	9.7	12.7	14.6	14.5	18.1	18.0	10.3	10.3	70.1	68.4	3.0	273			331	82	75		245		
18 "	61.00	1733	1419	1040	871	481	905	565	348	867	917	725	888	512	505	359	360	344	342	244	244	290	255	248	248	244	260	252	166	164	154	108	429	192	252	323	375	373	464	464	261	261	1791	1747	1.42	135	5	9	158	46	36	420	4.11	2.32	220
	134.2	68.2	55.9	40.9	34.3	18.9	35.6	22.2	13.7	34.1	36.1	28.5	34.9	20.2	19.9	14.1	14.2	13.5	13.5	9.6	9.6	11.4	10.0	9.8	9.8	9.6	10.2	9.9	6.5	6.4	6.1	4.2	16.9	7.6	9.9	12.7	14.8	14.7	18.3	18.3	10.3	10.3	70.5	68.8	3.1	298			348	101	79		251		
19 "	61.59	1733	1413	1030	867	478	903	567	354	882	926	730	898	514	510	359	360	347	345	246	244	296	258	252	246	246	261	254	166	164	154	109	433	195	252	326	374	373	461	459	260	259	1787	1741	1.43	142	6	10	167	41	37	448	4.11	2.36	270
	135.4	68.2	55.6	40.5	34.1	18.8	35.5	22.3	13.9	34.7	36.5	28.7	35.3	20.2	20.1	14.1	14.2	13.7	13.6	9.7	9.6	11.6	10.1	9.9	9.7	9.6	10.3	10.0	6.5	6.4	6.1	4.3	17.0	7.7	9.9	12.8	14.7	14.7	18.1	18.1	10.2	10.2	70.4	68.5	3.1	312			368	90	82		251		
20 "	63 00	1731	1419	1037	869	480	907	566	356	889	929	735	899	515	514	360	360	349	348	246	245	300	262	256	252	247	263	257	166	165	154	109	437	197	253	327	374	373	463	462	262	262	1787	1746	1.57	145	7	10	173	42	38	471	4 23	2.41	270
	138.6	68.1	55.9	40 8	34.2	18.9	35.7	22.3	14.0	34.9	36.6	28.9	35.4	20.3	20.2	14.2	14.2	13.7	13.7	9.7	9.6	11.8	10.3	10.1	9.9	9.7	10.3	10.1	6.5	6.5	6 1	4.3	17.2	7.7	10.0	12.9	14.7	14.7	18.2	18.2	10.3	10.3	70.4	68.7	3.5	319			380	92	84		258		
21 "	63.97	1731	1412	1030	866	479	908	572	359	901	941	748	905	524	524	362	362	353	351	247	246	305	266	259	255	251	266	260	166	165	154	110	442	201	258	328	374	373	464	461	261	260	1792	1756	1.59	152	8	11	179	44	40	497	4.27	2.48	220
	140.6	68.1	55.6	40.5	34.1	18.9	35.7	22.5	14.1	35.4	37.0	29.4	35.6	20.6	20.6	14.2	14.2	13.9	13.8	9.7	9.7	12.0	10.5	10.2	10.0	9.9	10.5	10.2	6.5	6.5	6.1	4.3	17.4	7.9	10.1	12.9	14.7	14.7	18.3	18.1	10.3	10.2	70.6	69.1	3.5	335			395	97	88		260		
22 "	64 15	1732	1413	1031	861	477	909	569	361	909	949	755	908	525	521	363	363	354	353	249	247	308	262	256	256	252	268	261	167	165	155	110	443	203	260	336	373	373	461	461	262	262	1793	1746	1.66	153	8	11	175	44	40	503	4.35	2.47	150
	141.1	68.2	55.6	40.6	33.9	18.8	35.8	22.4	14.1	35.8	37.4	29.7	35.7	20.7	20.5	14.3	14.3	13.9	13.9	9.8	9.7	12.1	10.3	10.1	10.1	9.9	10.5	10.3	6.6	6.5	6.1	4.3	17.4	8.0	10.2	13.2	14.7	14.7	18.1	18.1	10.3	10.3	70.6	68.7	3.6	327			386	97	88		265		
23 "	63.02	1731	1417	1033	862	479	908	567	358	899	944	749	901	526	521	358	363	356	347	247	246	300	262	258	253	249	264	257	166	165	154	110	439	200	258	329	375	374	465	464	261	260	1788	1743	1.58	152	8	10	175	45	38	477	4.31	2.54	70
	138.6	68.1	55.8	40.7	33.9	18.9	35.7	22.3	14.1	35.4	37.1	29.5	35.5	20.7	20.5	14.1	14.3	14.0	13.7	9.7	9.7	11.8	10.3	10.1	10.0	9.8	10.4	10.1	6.5	6.5	6.1	4.3	17.3	7.9	10.1	12.9	14.8	14.7	18.3	18.3	10.3	10.2	70.4	68.6	3.5	325			386	99	84		263		
24 "	65.47	1732	1417	1041	869	482	908	573	363	915	959	766	915	526	522	364	366	356	355	251	249	310	270	258	258	253	269	262	167	167	155	111	446	206	264	333	379	378	467	465	263	262	1791	1752	1.61	150	7	10	177	44	40	486	4.38	2.88	60
	143.9	68.2	55.8	41.0	34.2	19.0	35.7	22.6	14.3	36.0	37.8	30.2	36.0	20.7	20.5	14.3	14.4	14.0	14.0	9.9	9.8	12.2	10.6	10.1	10.1	10.0	10.6	10.3	6.6	6.6	6.1	4.4	17.6	8.1	10.4	13.1	14.9	14.9	18.4	18.3	10.3	10.3	70.5	69.0	3.5	331			390	97	88		267		
25 "	65.08	1733	1414	1041	867	471	913	571	367	917	957	770	915	527	524	358	362	355	352	253	250	311	270	265	257	254	268	262	168	166	155	111	445	208	266	333	371	371	460	461	261	261	1781	1735	1.46	143	7	10	175	44	40	467	4.38	2.70	20
	143.1	68.2	55.7	41.0	34.1	18.5	35.9	22.5	14.4	36.1	37.7	30.3	36.0	20.7	20.6	14.1	14.2	14.0	13.9	10.0	9.8	12.2	10.6	10.4	10.1	10.0	10.5	10.3	6.6	6.6	6.1	4.4	17.5	8.2	10.5	13.1	14.6	14.6	18.1	18.1	10.3	10.3	70.1	68.3	3.2	315			386	97	88		267		
26 "	64 71	1750	1439	1041	867	487	922	570	358	894	949	749	914	519	515	359	362	351	350	249	248	305	265	259	255	252	267	260	168	167	154	111	447	205	261	335	384	382	471	470	263	262	1821	1761	1.44	150	7	9	179	43	39	489	4.45	2.64	20
	142.3	68.9	56.7	41.0	34.1	19.2	36.3	22.4	14.1	35.2	37.4	29.5	36.0	20.4	20.3	14.1	14.2	13.8	13.8	9.8	9.8	12.0	10.4	10.2	10.0	9.9	10.5	10.2	6.6	6.6	6.1	4.4	17.6	8.3	10.3	13.2	15.1	15.0	18.5	18.5	10.3	10.3	71.7	69.3	3.2	331			395	95	86		271		1430



Hips.

2	860
7	33.9
3	860
7	33.9
3	864
7	34.0
3	864
7	34.0
08	873
.8	34.4
09	879
3.0	34.6
10	881
3.0	34.7
710	882
8.0	34.7
714	882
28.1	34.7
722	884
28.4	34.8
722	886
28.4	34.8
723	886
28.4	34.8
723	888
28.4	34.9
726	895
28.5	35.2
729	896
28.7	35.3
731	908
28.7	35.7
738	912
9.0	35.9
738	912
9.0	35.9
741	912
9.2	35.9
745	916
9.3	36.1
748	921
9.4	36.2
748	921
9.4	36.2
748	922
9.4	36.3
749	923
9.5	36.3

Anthropometric Study of the Students of Amherst College.

6. TABLE OF HEIGHTS.—1322 MEASUREMENTS.

The black figures represent millimeters, kilograms and liters: the red, inches, pounds and cubic inches.

March, 1892.

	WEIGHTS.	HEIGHTS.												GIRTHS.												BREADTHS.												LENGTHS				STRENGTHS.					
		Sternum.	Navel.	Pubes.	Knee.	Sitting.	Head.	Neck.	Chest Repose.	Chest Full.	Belly.	Hips.	Right Thigh.	Left Thigh.	Right Knee.	Left Knee.	Right Calf.	Left Calf.	Right Instep.	Left Instep.	Upper Right Arm Contr'd	Upper Right Arm.	Upper Left Arm.	Right Elbow.	Right Forearm.	Right Wrist.	Head.	Neck.	Shoulder.	Nipples.	Waist.	Hips.	Right Shoulder Elbow.	Left Shoulder Elbow.	Right Elbow Tip.	Left Elbow Tip.	Right Foot.	Left Foot.	Stretch of Arms.	Horizontal Length.	Lungs.	Back.	Dip.	Pull.	Legs.	Right Forearm.	Left Forearm.	Total.	CAPACITY OF LUNGS.	PHLOSITY.
1600 mm.	53.9	1290	947	797	425	851	559	335	851	881	702	860	500	497	341	339	325	323	231	229.	275	248	244	241	237	253	248	161		151	104	413	191	245	313	349	346	430	429	242	241	1660	1610	1.3	126	10	11	130	34	31	470	3.16	2.2
63.0 in.	118.5	50.8	37.4	31.3	16.7	33.5	22.0	13.2	33.5	34.6	27.7	33.9	19.7	19.5	13.4	13.3	12.8	12.7	9.1	9.0	10.8	9.8	9.6	9.5	9.3	10.0	9.6	6.3		5.9	4.1	16.2	7.5	9.6	12.3	13.7	13.6	16.9	16.9	9.5	9.5	65.4	63.4	2.9	278			198					
1610 mm.	54.0	1300	958	800	430	856	561	338	852	882	703	860	501	498	341	339	326	324	231	229.	277	248	244	241	237	253	248	161		151	104	416	192	245	313	351	349	434	433	244	243	1690	1620	1.3	126	7	10	143	34	31	430	3.21	2.4
63.4 in.	118.5	51.2	37.8	31.6	16.9	33.7	22.1	13.4	33.6	34.7	27.7	33.9	19.7	19.6	13.4	13.3	12.8	12.7	9.1	9.0	10.9	9.8	9.6	9.5	9.3	10.0	9.8	6.3		5.9	4.1	16.3	7.6	9.6	12.3	13.8	13.7	17.1	17.1	9.6	9.6	66.5	63.8	2.9	278			315	75	68		196	
1620 mm.	54.1	1300	962	810	439	869	562	340	854	888	703	864	5	498	342	340	333	331	232	230	280	248	244	242	238	253	248	162		151	106	418	192	245	315	353	350	436	435	244	243	1690	1640	1.4	126	8	10	147	34	31	447	3.25	2.4
63.8 in.	119.0	51.2	37.9	31.9	17.3	34.2	22.1	13.4	33.6	34.9	27.7	34.0	1	19.6	13.5	13.4	13.1	13.0	9.1	9.0	11.0	9.8	9.6	9.5	9.4	10.0	9.8	6.4		5.9	4.1	16.4	7.6	9.6	12.4	13.9	13.8	17.2	17.1	9.6	9.6	66.5	64.6	3.1	278			324	75	68		198	
1630 mm.	54.5	1320	966	812	442	870	562	345	857	900	703	864	50	498	343	341	335	333	233	231	280	252	248	242	238	254	249	162		152	106	419	193	245	316	354	351	438	437	244	243	1690	1650	1.2	126	9	11	148	36	33	459	3.27	2.5
64.2 in.	119.9	52.0	38.0	32.0	17.4	34.3	22.1	13.6	33.7	35.4	27.7	34.0	19.7	19.6	13.5	13.4	13.2	13.1	9.2	9.1	11.0	9.9	9.8	9.5	9.4	10.0	9.8	6.4		6.0	4.1	16.5	7.6	9.6	12.4	13.9	13.8	17.2	17.2	9.8	9.6	66.5	65.0	2.6	278			326	79	78		199	
1640 mm.	54.7	1330	974	814	448	879	563	345	857	900	708	873	503	498	344	342	336	334	234	232	282	253	249	242	238	254	249	162		152	106	423	193	247	316	357	354	442	441	247	246	1700	1650	1.2	126	8	9	149	36	33	430	3.33	2.4
64.6 in.	120.3	52.2	38.4	32.1	17.6	34.5	22.2	13.6	33.7	35.4	27.8	34.4	19.8	19.6	13.5	13.5	13.2	13.1	9.2	9.1	11.1	10.0	9.8	9.5	9.4	10.0	9.8	6.4		6.0	4.1	16.6	7.6	9.7	12.4	14.0	13.9	17.2	17.4	9.7	9.7	66.9	65.0	2.6	278			328	79	78		203	
1650 mm.	55.5	1340	979	820	448	880	563	346	864	901	709	879	504	500	346	344	337	335	236	233	283	254	250	242	238	255	250	162		152	107	424	194	248	316	358	355	443	442	249	248	1700	1660	1.3	127	6	10	150	37	34	424	3.44	2.4
65.0 in.	122.1	52.8	38.5	32.3	17.6	34.6	22.2	13.6	34.0	35.4	28.0	34.6	19.8	19.7	13.6	13.5	13.3	13.2	9.3	9.2	11.1	10.0	9.8	9.5	9.4	10.0	9.8	6.4		6.0	4.2	16.8	7.6	9.8	12.4	14.1	14.0	17.4	17.4	9.8	9.8	66.9	65.4	2.9	280			331	82	75		210	
1660 mm.	57.3	1350	983	835	450	883	565	347	865	903	710	881	5	503	347	345	340	338	236	233	285	254	250	245	241	256	251	162		153	107	429	195	248	316	361	356	445	444	252	251	1700	1680	1.2	128	7	11	151	37	34	423	3.50	2.3
65.4 in.	127.1	53.2	38.8	33.0	17.7	34.7	22.2	13.7	34.0	35.5	28.0	34.7	1	19.8	13.7	13.6	13.4	13.3	9.3	9.2	11.2	10.0	9.8	9.6	9.5	10.1	9.9	6.4		6.0	4.2	16.9	7.7	9.8	12.4	14.2	14.0	17.5	17.5	9.9	9.9	66.9	66.1	2.6	282			333	82	75		214	
1670 mm.	57.9	1350	986	839	454	884	565	348	868	904	710	882	1	506	348	346	342	340	237	235	285	254	250	245	241	257	252	163		153	107	431	196	250	318	362	359	445	444	252	251	1720	1680	1.2	129	8	10	154	37	34	460	3.52	2.2
65.7 in.	128.3	53.2	38.9	33.1	17.8	34.8	22.2	13.7	34.2	35.5	28.0	34.7	20.6	19.9	13.7	13.6	13.5	13.4	9.3	9.2	11.2	10.0	9.8	9.6	9.5	10.1	9.9	6.4		6.0	4.2	16.9	7.7	9.8	12.5	14.2	14.1	17.5	17.5	9.9	9.9	67.7	66.1	2.6	284			339	82	75		215	
1680 mm.	60.1	1360	991	853	460	891	565	348	872	905	714	882	517	514	351	349	345	343	237	235	287	254	250	247	243	258	254	163		153	108	431	196	252	320	366	363	446	445	252	251	1730	1690	1.2	130	7	10	159	39	36	476	3.54	2.3
66.1 in.	132.0	53.5	39.0	33.6	18.1	35.0	22.2	13.7	34.3	35.6	28.1	34.7	20.3	20.2	13.8	13.7	13.6	13.5	9.3	9.2	11.3	10.0	9.8	9.7	9.6	10.1	10.0	6.4		6.0	4.2	16.9	7.7	9.9	12.6	14.4	14.3	17.6	17.5	9.9	9.9	68.1	66.5	2.6	287			850	86	79		216	
1690 mm.	60.2	1400	1020	862	473	905	566	350	872	908	722	884	517	514	352	350	345	343	237	235	287	257	253	249	245	261	255	164		153	108	431	196	252	324	366	363	450	449	253	252	1740	1700	1.1	135	6	10	160	39	36	436	3.60	2.4
66.5 in.	132.4	55.1	40.2	34.0	18.6	35.6	22.3	13.8	34.3	35.8	28.4	34.8	20.3	20.2	13.9	13.8	13.6	13.5	9.3	9.2	11.3	10.1	10.0	9.8	9.6	10.3	10.1	6.4		6.0	4.2	16.9	7.7	9.9	12.7	14.4	14.3	17.7	17.7	10.0	9.9	68.5	66.9	2.4	298			353	86	79		220	
1700 mm.	61.3	1400	1020	863	474	908	571	350	876	913	722	886	518	515	354	352	346	344	237	235	290	257	253	249	245	261	256	166		153	108	431	196	253	330	367	364	455	454	256	255	1770	1750	1.3	136	6	9	163	40	37	441	3.63	2.2
67.3 in.	134.8	55.1	40.2	34.0	18.7	35.7	22.4	13.9	34.6	36.1	28.4	34.8	20.4	20.3	13.9	13.9	13.6	13.5	9.3	9.2	11.4	10.1	10.0	9.8	9.6	10.3	10.1	6.5		6.0	4.2	16.9	7.7	10.0	13.0	14.4	14.3	17.9	17.9	10.1	10.0	69.7	67.7	2.9	300			359	88	82		221	
1710 mm.	61.3	1400	1020	863	474	908	571	352	880	916	723	886	519	516	355	354	347	345	239	237	292	257	253	249	245	262	257	166		153	108	431	196	253	332	368	365	457	456	259	258	1770	1760	1.1	137	6	9	164	40	37	470	3.66	2.4
67.7 in.	134.8	55.1	40.2	34.0	18.7	35.7	22.4	13.9	34.6	36.1	28.4	34.8	20.4	20.3	14.0	13.9	13.7	13.6	9.4	9.3	11.5	10.1	10.0	9.8	9.6	10.3	10.1	6.5		6.0	4.2	16.9	7.7	10.0	13.1	14.5	14.4	18.0	17.9	10.2	10.1	69.7	69.3	2.4	304			361	88	82		223	
1720 mm.	61.7	1410	1020	867	478	910	572	353	887	930	726	889	520	517	357	355	347	345	241	239	293	260	258	252	248	263	258	166		153	108	432	197	254	332	369	366	460	459	260	259	1780	1760	1.1	138	7	10	164	40	37	482	3.78	2.7
67.7 in.	135.7	55.5	40.2	34.1	18.8	35.8	22.5	13.9	34.8	36.5	28.4	34.9	20.5	20.3	14.0	14.0	13.7	13.6	9.5	9.4	11.5	10.2	10.1	9.9	9.8	10.3	10.1	6.5		6.0	4.2	17.0	7.7	10.0	13.1	14.5	14.4	18.1	18.1	10.2	10.2	70.1	69.3	2.4	304			361	88	82		231	
1730 mm.	62.1	1410	1040	870	484	918	572	354	887	930	726	895	523	518	360	358	351	349	242	240	295	260	258	252	248	263	258	167		153	109	432	198	254	332	369	366	465	464	264	263	1810	1770	1.3	140	6	10	164	40	37	458	3.90	2.5
68.1 in.	136.6	55.5	40.9	34.3	19.0	36.1	22.5	13.9	34.8	36.6	28.5	35.2	20.5	20.4	14.2	14.1	13.8	13.7	9.5	9.4	11.6	10.2	10.1	9.9	9.8	10.3	10.1	6.6		6.0	4.3	17.0	7.8	10.0	13.1	14.5	14.4	18.3	18.3	10.4	10.3	71.3	69.7	2.9	309			361	88	82		238	
1740 mm.	62.5	1420	1050	874	486	918	572	354	889	931	729	896	522	519	361	359	351	349	244	241	296	261	257	254	250	263	258	167		154	109	432	198	254	335	371	369	468	467	264	263	1810	1770	1.2	140	5	8	165	41	38	449	3.91	2.3
68.5 in.	137.5	55.9	41.3	34.4	19.1	36.1	22.5	13.9	35.0	36.6	28.7	35.3	20.5	20.4	14.2	14.1	13.8	13.7	9.6	9.5	11.6	10.3	10.1	10.0	9.8	10.3	10.1	6.6		6.1	4.3	17.0	7.8	10.0	13.2	14.6	14.5	18.4	18.4	10.4	10.3	71.3	69.7	2.6	309			364	90	84		239	
1750 mm.	63.9	1430	1050	880	486	918	572	355	889	931	731	908	522	519	364	361	351	349	244	241	296	261	257	254	250	263	258	167		154	109	433	199	254	335	376	373	468	467	265	264	1810	1770	1.2	140	6	8	167	41	38	476	3.94	2.8
68.9 in.	140.5	56.3	41.3	34.6	19.1	36.1	22.5	14.0	35.0	36.6	28.7	35.7	20.5	20.4	14.3	14.2	13.8	13.7	9.6	9.5	11.6	10.3	10.1	10.0	9.8	10.3	10.1	6.6		6.1	4.3	17.0	7.9	10.0	13.2	14.8	14.7	18.4	18.4	10.4	10.4	71.3	69.7	2.6	309			368	90	84		240	
1760 mm.	65.1	1440	1060	886	489	924	573	355	890	931	738	912	522	519	365	363	353	351	245	243	296	260	258	254	250	264	259	168		154	109	438	199	254	335	381	379	468	467	265	264	1810	1770	1.2	141	5	8	168	41	38	469	4.02	2.6
69.3 in.		56.7	41.7	34.9	19.3	36.4	22.5	14.0	35.0	36.6	29.0	35.9	20.5	20.4	14.4	14.3	13.9	13.8	9.6	9.6	11.6	10.2	10.1	10.0	9.8	10.4	10.2	6.6		6.1	4.3	17.2	7.9	10.0	13.2	15.0	14.9	18.4	18.4	10.4	10.4	71.3	69.7	2.6	311			370	90	84		245	
1770 mm.	67.8	1450	1060	895	494	925	574	355	890	934	738	912	523	519	366	364	353	351	245	243	296	260	258	255	251	265	261	168		154	109	438	200	256	335	382	379	470	469	266	265	1810	1780	1.3	141	5	8	168	41	38	450	4.03	2.5
69.7 in.		57.1	41.7	35.2	19.6	36.4	22.6	14.0	35.0	36.7	29.0	35.9	20.6	20.4	14.4	14.3	13.9	13.8	9.6	9.6	11.6	10.2	10.1	10.0	9.9	10.4	10.3	6.6		6.1	4.3	17.2	7.9	10.1	13.2	15.0	14.9	18.5	18.5	10.5	10.4	71.3	70.1	2.9	311			370	90	84		246	
1780 mm.	67.8	1450	1070	896	499	925	575	356	891	936	741	912	523	519	366	364	353	351	246	244	297	261	259	255	251	266	261	168		154	109	438	200	256	336	384	381	475	474	267	266	1820	1780	1.2	141	5	8	169	41	39	499	4.05	2.2
70.1 in.		57.1	42.1	35.2	19.7	36.4	22.6	14.0	35.1	36.8	29.2	35.9	20.6	20.4	14.4	14.3	13.9	13.8	9.7	9.6	11.7	10.3	10.2	10.0	9.9	10.5	10.3	6.6		6.1	4.3	17.2	7.9	10.1	13.2	15.1	15.0	18.7	18.7	10.5	10.5	71.7	70.1	2.6	311			372	90	86		247	
1790 mm.	68.0	1460	1080	899	500	933	576	356	893	936	745	916	523	519	367	365	354	352	247	245	300	261	259	256	252	267	262	169		155	109	438	201	256	337	395	392	480	479	270	269	1850	1790	1.2	142	5	9	171	42	40	456	4.18	2.3
70.5 in.		57.5	42.5	35.4	19.7	36.7	22.7	14.0	35.2	36.8	29.3	36.1	20.6	20.4	14.4	14.4	13.9	13.9	9.7	9.6	11.8	10.3	10.2	10.1	9.9	10.5	10.3	6.6		6.1	4.3	17.2	7.9	10.1	13.3	15.5	15.4	18.9	18.9	10.6	10.6	72.8	70.5	2.6	313			377	92	88		255	
1800 mm.	68.2	1470	1090	907	504	934	582	356	894	938	748	921	524	522	369	367	354	352	247	245	300	261	259	256	252	268	263	170		155	109	439	201	256	340	396	393	484	483	273	272	1870	1790	1.1	145	5	8	172	43	40	456	4.42	2.2
70.9 in.		57.9	42.9	35.7	19.9	36.7	22.9	14.0	35.2	36.9	29.4	36.2	20.6	20.5	14.5	14.4	13.9	13.9	9.7	9.6	11.8	10.3	10.2	10.1	9.9	10.5	10.3	6.7		6.2	4.3	17.3	7.9	10.1	13.4	15.6	15.5	19.0	19.0	10.7	10.7	73.6	70.5	2.4	320			379	95	88		270	
1810 mm.	68.2	1480	1090	918	517	937	582	356	898	939	748	921	524	522	369	367	356	354	247	245	300	262	260	256	252	268	263	171		156	109	439	205	260	341	396	393	485	484	274	273	1880	1790	1.2	147	5	8	173	43	40	485	4.43	2.4
71.3 in.		58.3	42.9	36.1	20.3	36.8	22.9	14.0	35.3	37.0	29.4	36.2	20.6	20.5	14.5	14.4	14.0	13.9	9.7	9.6	11.8	10.3	10.2	10.1	9.9	10.5	10.3	6.7		6.2	4.3	17.3	8.1	10.2	13.4	15.6	15.5	19.1	19.0	10.8	10.7	74.0	70.5	2.6	324			381	95	88		270	
1820 mm.	68.3	1480	1090	919	519	939	583	356	898	953	748	922	526	523	369	367	356	354	247	245	300	262	260	256	252	269	264	171		156	109	440	206	263	341	397	394	486	485	274	273	1890	1820	1.1	147	6	8	174	43	40	467	4.43	2.6
71.7 in.		58.3	42.9	36.2	20.4	37.0	23.0	14.0	35.3	37.5	29.4	36.3	20.7	20.6	14.5	14.4	14.0	13.9	9.7	9.6	11.8	10.3	10.2	10.1	9.9	10.6	10.4	6.7		6.2	4.3	17.3	8.1	10.3	13.4	15.6	15.5	19.1	19.1	10.8	10.7	74.4	71.7	2.4	324			384	95	88		270	
1830 mm.	68.3	1505	1120	921	525	939	583	356	899	956	749	923	529	527	369	367	356	354	247	245	302	263	259	257	253	269	264	172		156	109	445	206	263	341	398	395	488	487	276	275	1890	1840	1.2	148	6	11	174	44	41	485	4.48	2.5
72.0 in.		59.3	44.1	36.3	20.7	37.0	23.0	14.0	35.4	37.6	29.5	36.3	20.8	20.7	14.5	14.4	14.0	13.9	9.7	9.6	11.8	10.4	10.3	10.1	10.0	10.6	10.4	6.8		6.2	4.3	17.5	8.1	10.3	13.4	15.7	15.6	19.2	19.2	10.9	10.8	74.4	72.4	2.6	326			384	97	90		273	

Anthropometric Study of the Students of Amherst College.

7. TABLE OF PERCENTAGES.—2230 MEASUREMENTS.

The black figures represent millimeters, kilograms and liters; the red, inches, pounds and cubic inches.

PER CENT.	WEIGHT.	HEIGHTS.						GIRTHS.														BREADTHS.										LENGTHS.				STRENGTHS.								CAPACITY OF LUNGS.
		Body.	Sternum.	Navel.	Pubes.	Knee.	Sitting.	Head.	Neck.	Chest Repose.	Chest Full.	Belly.	Hips.	Right Thigh.	Left Thigh.	Right Knee.	Left Knee.	Right Calf.	Left Calf.	Right Instep.	Left Instep.	Upper Right Arm Contracted	Upper Right Arm.	Upper Left Arm.	Right Elbow.	Left Elbow.	Right Forearm.	Left Forearm.	Right Wrist	Left Wrist.	Head.	Neck.	Shoulder.	Waist.	Hips.	Nipples.	Right Shoulder Elbow.	Left Shoulder Elbow.	Right Elbow Tip.	Left Elbow Tip.	Right Foot.	Left Foot.	Stretch of Arms.	Horizontal Length.	Lungs.	Back.	Dip.	Pull.	Legs.	Right Forearm	Left Forearm.	Total.	
5	74.3	1827	1500	1109	936	523	954	593	384	969	1010	814	962	571	569	388	388	381	380	267	265	335	292	288	274	270	289	280	179	177	163	119	468	281	352	222	403	402	494	492	279	279	1910	1841	2.2	194	14	16	238	53	50	644	4.95
	163.7	71.9	59.1	43.6	36.8	20.6	37.5	23.3	15.1	38.1	39.8	32.1	37.9	22.5	22.3	15.3	15.3	15.0	15.0	10.5	10.4	13.2	11.5	11.3	10.7	10.6	11.3	11.0	7.0	7.0	6.4	4.7	18.4	11.1	13.9	8.8	15.9	15.8	19.4	19.4	10.9	10.9	75.2	72.4	4.85	428			525	116.3	110.2	1420	301.9
10	71.3	1804	1480	1093	919	512	943	588	377	949	992	794	948	559	556	380	380	374	371	260	260	327	286	280	269	264	281	275	175	174	161	116	461	274	345	217	397	395	486	485	275	275	1886	1820	2.0	178	12	14	219	50	47	594	4.69
	157.0	71.1	58.3	43.0	36.1	20.2	37.1	23.2	14.9	37.3	39.1	31.2	37.3	22.0	21.9	15.0	15.0	14.7	14.6	10.2	10.2	12.9	11.2	11.0	10.5	10.5	11.0	10.9	6.9	6.8	6.3	4.5	18.1	10.8	13.6	8.6	15.6	15.6	19.1	19.1	10.8	10.8	74.2	71.7	4.40	393			483	110.2	103.6	1310	286.1
20	67.9	1776	1454	1070	899	499	930	581	369	925	970	769	929	542	539	373	372	364	362	255	253	315	277	270	262	259	275	269	171	170	158	113	451	266	338	209	388	387	478	476	270	270	1850	1789	1.7	160	10	12	199	46	43	542	4.42
	149.6	69.9	57.3	42.1	35.3	19.6	36.6	22.8	14.6	36.4	38.2	30.3	36.5	21.4	21.2	14.7	14.7	14.3	14.3	10.0	9.9	12.4	10.9	10.7	10.3	10.3	10.9	10.5	6.7	6.7	6.2	4.4	17.7	10.4	13.3	8.2	15.3	15.3	18.8	18.7	10.6	10.6	72.8	70.4	3.64	353			439	101.4	94.8	1194	269.6
30	65.4	1756	1439	1057	886	490	921	577	360	910	954	752	915	531	529	368	369	359	356	250	249	308	270	264	259	254	270	264	169	168	156	111	445	261	333	204	382	380	472	471	266	266	1829	1769	1.6	150	8	11	184	43	41	507	4.22
	144.1	69.1	56.7	41.6	34.8	19.3	36.2	22.7	14.2	35.8	37.5	29.6	36.0	20.9	20.8	14.5	14.5	14.1	14.0	9.8	9.7	12.1	10.7	10.5	10.3	10.0	10.6	10.5	6.6	6.6	6.1	4.4	17.5	10.2	13.1	8.0	15.0	15.0	18.6	18.5	10.5	10.5	72.0	69.6	3.52	331			406	94.8	90.4	1117	257.4
40	63.5	1739	1422	1040	874	483	913	571	357	897	940	740	904	522	519	362	363	352	351	246	245	300	265	259	255	250	267	266	168	165	154	110	439	257	329	200	377	375	466	465	263	263	1808	1750	1.5	149	7	10	175	41	39	479	4.03
	140.0	68.5	56.0	40.9	34.5	19.0	35.9	22.5	14.1	35.3	37.0	29.1	35.5	20.6	20.4	14.3	14.3	13.8	13.8	9.6	9.6	11.8	10.5	10.3	10.0	9.8	10.4	10.2	6.6	6.5	6.1	4.3	17.2	10.1	13.0	7.9	14.9	14.8	18.3	18.3	10.3	10.3	71.2	68.9	3.30	328			385	90.4	86.0	1056	245.8
50	61.6	1724	1410	1029	864	476	905	569	351	885	925	730	893	514	510	359	359	347	345	242	241	295	259	252	250	247	262	256	165	163	153	108	433	253	325	196	373	371	461	459	260	260	1789	1739	1.4	139	6	9	169	39	37	453	3.89
	135.8	67.8	55.5	40.5	34.1	18.7	35.6	22.4	13.8	34.8	36.4	28.7	35.1	20.2	20.1	14.1	14.1	13.7	13.6	9.5	9.5	11.6	10.2	9.9	9.8	9.7	10.3	10.1	6.5	6.4	6.0	4.3	17.0	10.0	12.8	7.7	14.7	14.6	18.2	18.1	10.3	10.3	70.4	68.4	3.08	306			373	86.0	81.6	999	237.3
40	59.9	1710	1399	1019	854	469	897	564	348	870	913	718	882	505	500	353	354	341	340	240	239	289	253	248	249	242	259	252	163	161	152	107	427	249	321	192	369	367	456	454	257	257	1769	1723	1.2	130	4	8	157	37	35	431	3.71
	132.0	67.3	55.1	40.1	33.6	18.4	35.3	22.2	13.7	34.3	35.9	28.3	34.7	19.9	19.7	13.9	14.0	13.5	13.4	9.4	9.4	11.4	9.9	9.7	9.8	9.5	10.2	9.9	6.4	6.3	6.0	4.2	16.8	9.8	12.7	7.6	14.5	14.4	18.0	17.9	10.1	10.1	69.6	67.8	2.64	287			346	81.6	77.2	950	226.3
30	57.8	1692	1380	1007	842	461	888	560	342	859	900	704	872	496	492	349	349	336	335	237	236	283	249	241	244	239	255	249	161	160	150	105	421	245	317	189	364	363	451	449	254	254	1749	1709	1.1	124	3	7	149	35	33	406	3.57
	127.4	66.6	54.3	39.6	33.2	18.1	34.9	22.0	13.5	33.9	35.4	27.7	34.4	19.5	19.4	13.7	13.7	13.2	13.2	9.3	9.3	11.1	9.7	9.5	9.6	9.4	10.0	9.8	6.3	6.3	5.9	4.2	16.6	9.7	12.5	7.3	14.3	14.3	17.8	17.7	10.0	10.0	68.8	67.2	2.42	273			328	77.2	72.8	892	217.7
20	55.9	1674	1363	992	829	453	879	556	338	844	884	690	859	487	482	342	344	329	329	232	232	275	242	237	239	234	250	242	159	158	149	103	413	240	313	184	359	357	445	444	251	251	1725	1687	1.0	117	2	6	139	33	31	374	3.38
	123.2	65.8	53.7	39.1	32.6	17.8	34.6	21.9	13.3	33.2	34.7	27.2	33.8	19.2	19.0	13.5	13.5	12.9	12.9	9.1	9.1	10.8	9.5	9.4	9.4	9.2	9.8	9.5	6.3	6.2	5.9	4.1	16.3	9.5	12.3	7.2	14.1	14.0	17.5	17.5	9.9	9.9	67.9	66.3	2.20	258			306	72.8	68.3	825	206.2
10	53.4	1647	1339	970	812	442	866	550	330	823	861	675	842	474	470	335	336	320	320	229	228	265	234	229	233	229	243	237	156	154	147	101	402	235	306	178	351	351	436	434	246	245	1696	1659	0.8	104	1	4	124	30	29	339	3.16
	117.7	64.9	52.8	38.2	32.0	17.4	34.1	21.6	13.0	32.4	33.9	26.6	33.2	18.7	18.5	13.2	13.3	12.6	12.6	9.0	9.0	10.4	9.2	9.0	9.2	9.0	9.5	9.4	6.1	6.1	5.8	4.0	15.8	9.3	12.0	7.0	13.8	13.8	17.1	17.0	9.7	9.6	66.7	65.3	.76	229			273	66.1	63.9	748	192.7
5	51.0	1625	1319	952	795	432	853	545	324	805	843	664	829	463	459	329	330	314	313	224	224	258	227	221	229	224	239	230	153	151	145	99	393	230	301	173	345	343	428	427	242	241	1670	1637	0.7	99	0	3	112	28	26	309	2.93
	112.4	64.1	52.0	37.5	31.3	17.0	33.6	21.5	12.8	31.7	33.2	26.1	32.6	18.2	18.0	12.9	13.0	12.3	12.3	8.8	8.8	10.1	9.0	8.7	9.0	8.8	9.4	9.1	6.0	5.9	5.7	3.9	15.5	9.1	11.8	6.8	13.6	13.5	16.8	16.8	9.5	9.4	65.7	64.5	1.54	218			247	61.7	57.3	681	178.7